Business Process Review Meeting

April 13, 2004

Roadway Network System (RNS)

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Project Goals & Objectives

- Provide a Technology Upgrade to the 1991 HTRIS System
- Spatially Enable Roadway Data and Link Associated Business Data
- Streamline VDOT's Roadway Inventory Update Process
- Provide Universal Data Access and a Web-Based User Interface

Current Project Status

Oversight Approval

Approval of the Project Charter and Proposal was received March 2004.

IT Investment Board

The presentation of this project is scheduled for May 5, 2004.

Current Project Status

The Requirements Phase has begun. The project team has collected initial business process information that will be reviewed by the Business Team. Findings will then be presented to the Steering Committee May 7 for discussion and scope clarification.

From February 23 Kickoff - Next Critical Steps

✓ Business Representatives meet with the IT project team to identify current HTRIS business processes.
- Team analyzed each of the subsystems to identify the high level business process data flow.
- Emphasis during collection was on the function, the use, and the possible alternative approaches for managing the business needs within a new RNS or outside of the RNS
- This is scope definition – nailing the box boundaries

The Ten HTRIS Subsystems

RDI	Roadway Inventory	TCI	Traffic Control Inventory
TCA	Traffic Count Analysis	STI	Structures Inventory
ACC	Accident	PAV	Pavement
RRX	Railroad Crossing	HPM	Highway Performance Monitoring
SPZ	Speed Zone	CEN	Central

Roadway Inventory System (RDI)

Purpose

- HTRIS RDI contains the basic roadway attribute information inventory for all state maintained roads
- The RDI is the framework used by all subsystems to locate events and features on the roads

Users & Interfaces

- As the core of all HTRIS subsystems, the RDI is used by all HTRIS users to spatially reference attributes and business data

Functions Not Used

- None

Possible Improvements

- Integrate centerline updates with AMD and Local Assistance Division's processes at the Residency level
- Coordinate data collection process with current DACSS process
- Eliminate dual, duplicate, and redundant data entry
- Create an invisible linkage to geospatial roadway network and associated business data through web services
- Where appropriate, incorporate electronic approval processes

Traffic Count Analysis (TCA)

Purpose

- Store summary traffic data (originally designed to perform analysis on traffic data)

Users & Interfaces

- Primary users are HPMS, Mobility Management safety section, Structure & Bridge, Asset Management
- TMS downloads RDI and uploads summary traffic data

Functions Not Used

- All data entry and calculation functions

Functions Currently Used

- Data repository for TMS generated summary traffic data
- Produce reports identifying road usage statistics

Possible Improvements

- Interface with TMS rather than rebuild this functionality

Accident Subsystem (ACC)

Purpose

- Provides VDOT a means to enter road data into DMV's CAPS crash system
- Provides analysis and reporting on state crash data

Users & Interfaces

- Primary users are Mobility Management safety section, District Traffic Engineering, and Structure & Bridge
- Additional users include State Police and DMV

Functions Not Used

- None

Functions Currently Used

- Crash location identification through SLD and/or Locator
- Crash location data entry through interface to CAPS
- Calculates critical rate and other statistical crash data
- Provides reports for hazard elimination safety program and others

Possible Improvements

- Recommend incorporating all current functionality of the ACC subsystem
- Include linkage with the new Crash Reporting System
- Evaluate accident document scanning processes of DMV and VDOT to ensure NO redundant effort is included

Railroad Crossing Subsystem (RRX)

Purpose

- Maintains inventory of all railroad crossings

Users & Interfaces

- Primary users are Mobility Management Safety Section and District Traffic Engineering
- Mobility Management's Access database (RR_Main) imports HTRIS RDI data and exports inventory changes

Functions Not Used

- HTRIS reporting functions

Functions Currently Used

- Enter a new crossing into inventory
- Mark a crossing inactive
- Close a crossing

Possible Improvements

- Incorporate the functions of the RR_Main database into the new RNS to
  - Improve data accuracy and currency
  - Reduce redundant data entry
  - Eliminate multiple system usage for similar functions
- Add flexibility to meet federal reporting requirements
- Provide a means to store and retrieve the digital photo of the crossing to associate the photo with the crossing

Speed Zone Subsystem (SPZ)

Purpose

- Maintains the speed zone inventory

Users & Interfaces

- None

Functions Currently Used

- None; Mobility Management's Speed Zone Database is the official record of speed zones and resolutions authorizing speed zone creation

Functions Not Used

- All

Possible Improvements

- Enable speed limit to become an attribute of the RNS roadway
  - Include the functionality of Mobility Management Speed Zone Database into the RNS,

  OR
  - Provide a link to the existing Mobility Management Speed Zone Database

Traffic Controls Inventory (TCI)

Purpose

- Maintains the traffic control device inventory

Users & Interfaces

- None

Functions Not Used

- All

Possible Improvements

- Transfer all of these functions to the Asset Management System

Structure Subsystem (STI)

Purpose

- Maintains federal and state data for over 20,000 bridges and culverts and report inventory to FHWA

Users & Interfaces

- Primary users are district and Central Office engineers
- Bridge inspectors and hauling permits staff
- Trns*port, CAS/CWB, FMS, PPMS, and Pontis Systems

Functions Not Used

- All current HTRIS functions are used

Functions Currently Used

- Enter, update, and extract information for culverts & bridges
- Produce the annual bridge inventory for FHWA
- Produce the HBRRP report for federal funding
- Stores the bridge condition rating received from PONTIS

Possible Improvements

- Eliminate the dual data entry into Bridge STI and Pontis
  - Locate structure business data in RNS
  - Locate structure business data in AMS
  - Locate structure business data in the AASHTO BRIDGEWare product (Pontis, Opis, Virtis)
- Eliminate the uploading of data into HTRIS
- Replace current HTRIS bridge data extraction and reporting processes (EXCEL/ACCESS) performed by the districts

Pavement Subsystem (PAV)

Purpose

- HTRIS provides critical pavement details in order to manage pavement maintenance

Users & Interfaces

- Primary users are district pavement coordinators & pavement management engineers
- Materials Division enters data into a skid application that is uploaded to HTRIS and runs batch wet accident reports

Functions Not Used

- All Condition Menu Functions
- Deflection and Road Profile Menu Functions

Functions Currently Used

- Enter and extract information for new road construction and maintenance-schedule projects
- Produce batch pavement description & specification reports
- Provides wet accident and skid hot spot analysis

Possible Improvements

- Automate the construction project data entry process (M-20 form)
- Create an electronic Wet Accident File and an electronic Skid Potential Hot Spots

File
- Include the Skid and Wet Accident Functions in RNS System
- Transfer the processing of road projects to Asset Management System

Highway Performance Monitoring (HPM)

Purpose
- HPM is an HTRIS subsystem used to input roadway sample data required for HPMS reporting
- HTRIS produces a file that is used as input to the HPMS FHWA software

Users & Interfaces
- Primary users are IT Applications HTRIS staff

Functions Not Used
- None

Possible Improvements
- Incorporate GPS technology for sample data collection
- Automate the transfer of collected roadway sample data into the RNS
- Use GIS location function for reporting purposes

Central Subsystem (CEN)

Purpose
- Provides administrative functions and capabilities required to manage the day-to-day functioning of HTRIS

Users & Interfaces
- Primary users are HTRIS subsystem coordinators
- No interfaces exist with this subsystem

Functions Not Used
- All current HTRIS functions are used

Functions Currently Used
- Managing security access to each of the subsystems
- Performing routine database table maintenance
- Establishing and modifying batch reports
- Updating HELP system text.

Possible Improvements
- Add ad-hoc query and reporting capability
- Transfer database maintenance to IT System Administrators

HTRIS Subsystem Recommendations For RNS

HTRIS Subsystem		Recommendation for the RNS
Roadway Inventory	RDI	Include all existing functionality with enhancements as deemed appropriate
Traffic Count Analysis	TCA	Include an RNS interface with the Oracle TMS database instead of re-building this functionality in RNS
Accident	ACC	Include all current functionality of the ACC subsystem
Railroad Crossing	RRX	Incorporate/build the functions of the RR_Main Access database into the new RNS
Speed Zone	SPZ	1) Include an RNS interface with the Oracle Speed Zone database OR 2) Include all current functionality of the Oracle Speed Zone database in the RNS system
Traffic Control Inventory	TCI	Transfer all of these functions to the Asset Management System (do not include in RNS project scope)
Structures Inventory	STI	Transfer all of these functions to the AASHTO BRIDGEWare product (do not include in RNS project scope)
Pavement	PAV	1) Include the Skid and Wet Accident Functions in the new RNS System AND 2) Transfer the function of processing of road projects to Asset Management System
Highway Performance Monitoring	HPM	Include all current functionality of the HPM subsystem
Central	CEN	Include all current functionality of the CEN subsystem

Next Critical Steps

- Finalize project scope to include disposition for each HTRIS subsystem
- Obtain Steering Committee approval for proposed changes to the business processes and final scope
- IT Project Team & the Business Team develop high level functional specifications based on the approved redesigned processes.
- IT Project Team develop requirements specifications for the overall RNS with detailed specs to be done as each subsystem is developed